PRODUCTIVITY OF INNOVATIVE ENTREPRENEURS IN NIGERIA: ROLE OF ENTREPRENEURSHIP EDUCATION

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Abstract
Innovation has become one of the key factors that lie behind the success of modern businesses. This is a significant paradigm shift that only the ability of the entrepreneur to coordinate the other three factors of production: land, labour and capital matters for the success of micro, small, medium and large enterprises. This paper uses innovation data sourced from the Nigeria Enterprise survey 2014 which is the latest innovation data in Nigeria to investigate the effect of innovation on the productivity of micro, small, medium and large scale entrepreneurs in Nigeria. Simple Regression and descriptive analysis were applied to analyse the data in order to ascertain whether entrepreneurs that are innovative are more productive in terms of output, sales revenue, expansion of capital and profitability. Four types of innovation were reported in the data namely product innovation, process innovation, training innovation and organizational innovation. Innovation variables such as investment in Research and Development (R&D), adoption of new methods of production, adoption of information and communication technology, new marketing strategies, product replacement, and other variables were included in the analysis. The preliminary results show that firms that are more innovative have significantly higher productivity, sales revenue, business expansion and profitability. The results show that innovative entrepreneurs are more efficient in terms of cost reductions resulting from new technologies. Among other things, the lesson from these findings for entrepreneurship education in Nigeria is that innovation should form an integral component of entrepreneurship training at all levels of education.

Keywords: Innovative, Entrepreneurs, Productive, Education, Nigeria

Introduction

Innovation has become one of the key factors that lie behind the success of modern businesses. This is a significant paradigm shift that only the ability of the entrepreneur to coordinate the other three factors of production: land, labour and capital matters for the success of small, medium and large enterprises. The efficacy of innovation can increase economic output and thereby make a way for the production of new goods and services in the society which can also upgrade human lives. Davison

(2015) defined Innovation as a way an individual employ his/her talent or creativity to bring up idea or solution. Creativity in Davison definition is one of the characteristics of an effective entrepreneurs because one has to implement what has been learnt for a positive output. According to Ramadan and Gerguri (2011), innovation is a way by which fresh ideas are being introduced in a business to the final stage where it produces money. Rmandan and Gerguri believed that fresh ideas yield money which is the objective of any business venture. Innovation is very important in all sectors of economy be it education, health sector, business among others. Entrepreneurs need to be updated in this global world else the growth of small, medium and large business ventures will be stagnant. Entrepreneurs that apply innovation in his/her business ventures will be more productive than others. Oyewale, Adeyemo and Ogunleye (2013) defined innovation as the main plan of action for competitive Small and medium business ventures. Innovation deals with creativity, that is, it brings new ideas to business ventures. Product innovation, process innovation and organizational innovation are three types of innovation needed for the progress of small, medium and large business ventures (Oliveira & Terence, 2018).

Product innovation is a new way of improving previous version of goods and services. Thus, previous goods can be redesigned with improved quality to attract more customers and improve sales. Furthermore, product innovation can mean development of a new product which people can desire more than the existing product. Process innovation is a new way of processing raw materials from the initial stage to the final stage. It is also the combination of different kinds of facilities, skills and technologies to produce a products and render services. In this innovation, different kinds of machines can be employed by the entrepreneurs to coordinate the three factors of production (land, labour and capital) for the progress and success of small, medium and large business ventures. Some of these business ventures use internet, Whatsapp, Twitter and so on for quick delivery system and marketing. Lack of financial and personnel resources are hindrances that affect innovation process in most of the small, medium and large business ventures (Oyewale, Adeyemo & Ogunleye, 2013). A creative entrepreneur will bring in innovation that will improve the standard of his business activities and also find possible solutions to the problem that militate against the growth of his business. The progress of any business ventures depend on the entrepreneur. Entrepreneur could organize a training inform of training innovation for his staff periodically where they will be updated and learn the new skills and strategies involve for the progress of his business. Training innovation deals with enhancing individual's talents and potentials for them to know the organization innovation practices. By doing this, the participants of the training will adopt new skills for innovation and learn how to apply them in their daily work. Organizational innovation is a change of product, process and service. It is also a new way an entrepreneur organizes his business activities by introduces new thing in an organization. Lam (2011) defines organizational innovation as acceptance of one's

idea or thought which is new to the organization. Also, Damanpour (199) define organization innovation as the acceptance of introducing new machines, system, product, service and so on to the organization for a better result. Innovation makes business to be better but not all the innovation can improve productivity. Effective innovative entrepreneurs need to apply ideas that will bring a positive change in his business venture and reduce the rate of business risk in order to maximize profit.

Entrepreneur is a person with overall responsibility for decision-taking in a business, who receives any profits and bears any losses. Hayes (2020) defines entrepreneur as a person who start a new business hope to bear all the risks and enjoy all the profits. According to Lenka, Oldrich, Jaroslaw and Jiri (2014), entrepreneurs are individuals beginning new value. Operationally, Entrepreneur is a person who start a business and own all the financial risks in order to earn profit. This implies that he is a decision-taker that decides what to produce, how to produce and to whom to produce. Furthermore, he employs foresights and enjoys all the benefits and loss in the business. An entrepreneur has the characteristics of passion, innovation, persistent, resourceful, risk-taker and discipline. Efficient entrepreneur has the ability to adopt change whenever there is opportunity for that and fine-tune the products and services they have. In collaboration with this, Chen and Pan (2019) opined that young entrepreneurs most often acquire new ideas that will help them to employ new business and new technology. He organizes all factors of production (Land, Labour and Capital) for the purpose of maximizing profit. All the activities involve in managing a business by the entrepreneur is called entrepreneurship.

Entrepreneurship is the process of running a business by controlling the affairs of the business for a rewards. Ferreira (2019) defined entrepreneurship as a human activity of creating a business for the purpose of bringing forth a profit. Entrepreneurship is just carrying out idea into action. Thus, it implies the performances of an entrepreneur. Entrepreneurship deals with establishing a new business venture having in mind of bearing its risks and still hope to make profit (Read, Sarasvathy, Dew & Wiltbank, 2016). It also involves managing and developing a business venture in order to arrange input like land, labour, materials and capital, bringing in new ways of operations and products for the progress of the business. Economic activities, creativity and innovation, profit and risk bearing are characteristics of Entrepreneurship.

Entrepreneurship education is a training concerns entrepreneurs. Entrepreneurship education can change the mind set of people and increase the creative skills of entrepreneurs for the effectiveness of all economic sectors including education. Ojeifo (2012) defined entrepreneurship education as a type of training that inculcate knowledge and acquisition and motivate students to establish a successful business ventures. This implies that it encourages self-employment. There are varieties of entrepreneurship training like dyeing and bleaching, bakery, Fine Art, Home Economics and so on depending on the area of specialization one want to be

trained. It has the characteristics of accommodating everyone irrespective of the discipline. The training is a lifelong one and the continuity of the programme will increase the innovative skills of an entrepreneur and the productivity of the business. Aljohani (2015) defines entrepreneurship education as a training that deals with building up expertise as entrepreneurs. Expertise in Aljohani definition implies someone that is professional and can apply new ideas into a business venture for the purpose of generating profit. Therefore, entrepreneurship education is a training given to the owners of business ventures to equip them with innovative skills that can be employ for a higher productivity. Entrepreneurship subjects is now introduced in Secondary Schools curriculum for the purpose of educating everyone on how to be creative in any field of study. These subjects are Creative and Arts, Home Economics, Dyeing and Bleaching and so on. These subjects have brought out different talents from Secondary Schools students for them to be productive in the society, that is, learning from the cradle. Entrepreneurship training applies to all fields of education, different forms of apprenticeship and it increases the skills of innovation in the life of entrepreneurs. Entrepreneurship Education inculcate in the minds of the entrepreneurs on how to use internet to market their products, increase the number of their customers and number of sales. Griffin and Hammis (2001, pg 2) stated that "for one to be a successful entrepreneur, he/she needs to learn the skills". Thus, there is need for entrepreneurs to embark on regular training on entrepreneurship education for continuous updates since the world is revolving in technological innovation. Cruz, Escudero, Barahona, and Leitao (2009) investigated on the effects of entrepreneurship education programs in nine provinces of Spain and concluded that "innovation is one of the most important activities for business competitiveness".

The problem of this study emanated from the fact that upon all the training on entrepreneurship education, the number of graduates that are unemployed are many (Eme, 2014). Adebobola, Rafiu and Akeremale (2015) found that the rate of unemployment and poverty is still at an increasing rate in Nigeria. According to National Bureau of Statistics (2014), the unemployment rate in Nigeria is 23.10 % while the previous rate is 22.70%. Unemployment is a serious problem in Nigeria but the fact is that many institutions of learning are not training the graduates to be self-reliant rather to look for white collar jobs to earn their living. Some of these graduates wander in search of jobs while many small and medium business ventures are growing slowly. Human development is very necessary in business ventures that is why there is need for in service training which some theories supported in order to maximize their profits.

Therefore, this study was fixed on Human capital theory (Becker, 1964) and Social cognitive theory by Albert Bandura (1986).Human capital theory states that entrepreneurs acquired skills through training or on the job experience and the training should be paid for. The theory also states that individuals or groups who possess greater levels of knowledge, skills, and other competencies will achieve

greater performance outcomes than those who possess lower levels. It can also be measure by the level of education, work experience among others. The relationship between this study and human capital theory is that the knowledge and skills acquired through entrepreneurship education will enable the entrepreneur to employ innovations in the running of the business which will lead to high productivity. Secondly, education can help the entrepreneur to know the current technological technique for an effective outcomes. Social learning theory was propounded by Albert Bandura (1986). The basic tenet of this theory is that learning occurs by observing others. Secondly, imitating others who seem competent, powerful, prestigious and enthusiastic enhance quick learning. Observation can be a very efficient learning process because through observational learning, individual cannot learn only how to perform a behavior but also what will happen in a specific situations when it is perform. The relationship between this study and the social cognitive theory is that entrepreneur can acquire innovative skills by observing others and imitate them. This can encourage him to have the desire for continuous training and updates his business activities with the new innovations for a better output.

Therefore, the introduction of Entrepreneurship education in education system could help a long way to increase the productivity of firms and equally help to reduce the high rate of poverty and unemployment in Nigeria.Thus, there is need to access the productivity of innovative entrepreneurs in Nigeria.

Research Questions

1. What is the innovative entrepreneurs' productivity level in terms of firm type?
2. What is the innovative entrepreneurs' productivity level in terms of firm size?

Methodology

This study used data sourced from the Nigerian Enterprise survey (2014) to investigate the effect of innovation on the productivity of firms. Descriptive analysis was used to analyse the data in order to find out whether innovating firms are more productive than non-innovating firms. With this method, a firm is said to be more productive if the mean log of output is greater than its counterpart.

Results

The results of the findings were analyzed as follows:

The two tables below show the proportion of innovation type or if multiplied by 100 gives the percentage of each innovation type by firm size and firm type. The last tables show the mean log of output by innovation type and firm size. The mean log of output of firms were used to evaluate the effect of innovation on the productivity of firms. Firms with higher mean value is therefore more productive than firms with lesser mean value.

Research Question one: What is the innovative entrepreneurs productivity level in terms of firm type?

Descriptive Results

Table 1: Summary statistics of Different Kinds of Innovation by Firm Type

	Manufacturing		**Services**	
Innovation Type	**mean**	**SD**	**mean**	sd
product Innovation	.381	.486	.351	.478
process innovation	.422	.495	.336	.473
Training	.164	.371	.114	.318
Nonfinancial support by gov	.103	.304	.02	.142
Spend money on innovation	.323	.468	.285	.452
RD internal	.187	.391	.143	.351
RD external	.048	.214	.033	.178
Innovation equip	.207	.405	.199	.4
patent license	.083	.276	.045	.208
internet email	.904	.297	.828	.379
internet intercom	.714	.454	.722	.45
internet online purchases	.559	.499	.405	.493
internet online sales	.577	.496	.457	.5
internet inventory management	.703	.459	.588	.494
internet marketing and distribution	.77	.423	.573	.496
internet RD	.584	.495	.449	.499
Org. inno new dept	.303	.461	.281	.451
Org. inno disolv dept	.142	.35	.132	.339
Org. inno merge dept	.213	.41	.159	.367

Table 1 shows innovation firm type and mean log of output. It could be observed that the mean log of output of firms that embark on internet exceeds other innovation type both in manufacturing and services. The study found the mean log of output of internet for manufacturing firms are as follows in percentage: internet email (90.4), internet intercom (71.4), internet online purchases (55.9), internet online sales (57.7), internet marketing and distribution (77.0), internet RD (58.4) and it is greater than product innovation (38.1), process innovation (42.2), training (16.4) and others.

The same thing applies to innovation type for service firms. For internet email (82.8), internet intercom (72.2), internet online purchases (40.5), internet online sales (45.7), internet inventory management (58.8), internet marketing and distribution (57.3), internet RD (44.9)and it is greater than other innovative type that are not internet such as production innovation (35.1), process innovation (33.6), training (11.4), nonfinancial support by gov (2) and others. This therefore implies that the productivity of manufacturing and service firms when they embark on innovation type that deals with internet are greater than innovation type that are not internet. Furthermore, the mean innovation type of internet for manufacturing firm is greater than the mean innovation type of internet for services firm. Thus, manufacturing firms has greater mean log output in terms of innovation type than their counterpart.

Research Question Two: What is the innovative entrepreneurs productivity level in terms of firm size?

Table 2: Summary statistics of Different Kinds of Innovation by Firm Size

	Firm Size			
Innovation Type	**Large >=100**	**Medium >=20 and <=99**	**Micro <5**	**Small >=5 and <=19**
product Innovation	.473	.339	.376	.357
process innovation	.534	.374	.331	.361
Training	.26	.172	.067	.118
Nonfinancial support by gov	.11	.072	.081	.034
Spend money on innovation	.392	.325	.31	.272
RD internal	.286	.195	.12	.139
RD external	.028	.05	.037	.036
Innovation equip	.292	.181	.205	.199
patent license	.042	.068	.125	.043
internet email	.98	.903	.684	.783
internet intercom	.804	.738	.684	.656
internet online purchases	.6	.46	.368	.433
internet online sales	.58	.529	.368	.473
internet inventory management	.765	.653	.611	.551
internet marketing and distribution	.725	.709	.474	.6
internet RD	.52	.539	.474	.472
Org. inno new dept	.406	.247	.286	.313

Org. inno disolv dept	.234	.123	0	.111
Org. inno merge dept	.266	.208	.071	.078

Table 2 shows the innovation firm size and mean log of output. It could be observed that innovation in form of internet was carried out by all the firm sizes and they had greater mean log output than other innovation type.Consequently, large firm had process innovation (53.4), internet email (98), internet intercom (80.4), internet online purchases (60), internet online sales (58), internet inventory management (76.5), internet marketing and distribution (72.5), internet RD (52) which is greater than other innovation type. Moreover, from the table medium firm had process innovation (37.4), internet email (90), internet intercom (73.8), internet online purchases (46), internet online sales (52.9), internet inventory management (65.3), internet marketing and distribution (70.9) and internet RD (53.9) which greater than other innovation type. Form micro firm, process innovation (37.6), internet email (68.4), internet intercom (68.4), internet online purchases (36.8), internet inventory management (61.1), internet marketing and distribution (47.4), internet RD (47.4) which greater than other innovation type. For small firm, process innovation (36.1), internet email (78.3), internet intercom (65.6), internet online purchases (43.3), internet inventory management (55.1), internet marketing and distribution (60), internet RD (47.2) which is greater than other innovation type.It was observed that large firm had greater mean log output followed by medium firm, small firm and micro firm. This implies that the effect of innovation on large firm enhance greater productivity than other firm size. Thus entrepreneurship education enhance productivity and this was shown by their mean.

Table 3: Tabulation of Product Innovation Firm Size and Mean Log of Output

	Firm Size			
product innovation	Micro <5	Small >=5 and <=19	Medium >=20 and <=99	Large >=100
No	14.133	14.944	15.435	17.115
Yes	15.143	14.825	15.686	17.159

Tabulation of Process Innovation Firm Size and Mean Log of Output

	Firm Size			
process innovation	Micro <5	Small >=5 and <=19	Medium >=20 and <=99	Large >=100
No	14.17	14.945	15.495	17.255
Yes	15.109	14.777	15.569	17.107

Tabulation of Product Innovation Firm Type and Mean Log of Output

product innovation	Firm Type

	Manufacturing	Services
No	15.371	14.898
Yes	15.474	15.237

Tabulation of Process Innovation, Firm Type and Mean Log of Output

	Firm Type	
process innovation	Manufacturing	Services
No	15.548	14.823
Yes	15.242	15.355

Tabulation of Training, Firm Size and Mean Log of Output

	Firm Size			
formal employee training	Micro <5	Small >=5 and <=19	Medium >=20 and <=99	Large >=100
No	14.434	14.87	15.523	17.231
Yes	15.398	15.211	15.528	17.028

Tabulation of Training, Firm Type and Mean Log of Output

	Firm Type	
formal employee training	Manufacturing	Services
No	15.428	14.918
Yes	15.46	15.826

Tabulation of Organizational Innovation, Firm Type and Mean Log of Output

organizational innovation dissolves dept/unit	Firm Type	
	Manufacturing	Services
No	15.904	15.395
Yes	16.399	16.795

Tabulation of Organizational Innovation, Firm Size and Mean Log of Output

	Firm Size			
organizational innovation dissolves dept/unit	Micro <5	Small >=5 and <=19	Medium >=20 and <=99	Large >=100
No	14.773	15.036	15.511	17.214
Yes		16.073	15.936	17.838

Table 3 shows the mean log of output by innovation type and firm size. The results do not show significant differences in output by innovation type except of

course in organizational innovation that involve dissolving existing departments or units.

Discussion

Research question one sought to found out the innovative entrepreneurs productivity level by firm type and their mean log output. It was observed that innovation types that has the greater mean log output for manufacturing and services are internet email, internet intercom, internet online purchases, internet online sales, internet inventory management, internet marketing and distribution and internet RD. These innovation type have the mean log output that is above .50 or 50%. This implies that internet as one of the innovation type enhances productivity. Entrepreneurship education encourages individual to be acquainted with internet which is very important in this technological era and it improves creativity. Although, manufacturing has the greater mean log output in almost the innovation type than services. This result is in agreement with Fillis & Rentschler, (2010) who concluded that "enhancing their creativity skills allows entrepreneurs to discover and exploit opportunities that enable their firms to be more competitive and innovative". Internet is very good in business marketing and it will enable an entrepreneur to get more customers both far and near. Thus entrepreneurship education improve creativity skills that is needed and it could help to reduce the high rate of poverty and unemployment.

Research question two analyzed the innovative entrepreneurs' productivity level by firm size. It was observed that in table 2, large, medium, micro and small firms had the highest mean log output when they embark on internet email, internet intercom, internet online purchases, internet online sales, internet inventory management, internet marketing and distribution and internet RD. On the basis of other innovation type that is not internet, it was observed that mean log output was below 50%. This implies that when firms embark on internet to advertise their business, it increases productivity. Furthermore, large firm had greater mean log output than other firms followed by medium firm. This finding is in line with the findings of Griffin and Hammis (2001) who observed that entrepreneurs need to learn new skills for higher productivity. This is a strong evident that firms that embark on entrepreneurship education/training to update themselves on innovation will have higher productivity. More so, organisational innovation has been observed by firms as paramount to increased productivity. The study observed that the mean values of the organisational innovating firms were greater than the mean values of those firms that do not innovate. It therefore implies that firms at all sizes recognizes the benefits of organisational innovation as it increases their productivity.

Conclusion

Innovation is employing your talents to bring ideas for effective business management. It deals with skills acquired that directs an entrepreneur a better way

to success in business. It involves creativity and implementation of new process, new products, new strategies and new organizational of business for higher productivity. The innovative skills could be acquired through entrepreneurship education which is the training that is very important for the entrepreneurs Innovative entrepreneurs are creative and they know effective strategy required for business management by employing innovation type such as process innovation, product innovation, organizational innovation, internet email, internet intercom, internet online purchases, internet online sales, internet inventory management, internet marketing and distribution, internet RD among others . The study found that micro, small, medium and large scale firms that innovate are more productive. It also showed that both manufacturing and service firms that embark on innovation are more productive.

Recommendation

Based on the findings of this study, the following recommendations are made:

1. Curriculum designers should include entrepreneurship education in Nursery, primary and secondary schools as a subject.
2. Entrepreneurs should update themselves regularly in order to move along with the changes in technology.
3. There is need for government in various states to support entrepreneurs and young graduates by giving them loan or supply technological devices needed for advertising their business and other business activities for maximization of output.

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